

**THOMPSON-LISTON  
ASSOCIATES, INC.**

*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842



**EXHIBIT**

6

**Stormwater Management Standard #1  
Computations to show that discharges will not cause scour or erosion**

There are three locations where the site's new drainage system will discharge captured runoff. One is via a 10 inch HDPE pipe discharging from 14,000 square feet of the building roof.

The second discharge is from three 6 inch HDPE pipes discharging from the proposed infiltration structure.

This discharge will also be directed into a 10 foot diameter stone lined sediment sump before proceeding onward along natural ground.

The third discharge is from a 12" HDPE pipe out of a CDS stormwater filtration unit model 2015 that is filtering pavement runoff captured by the two proposed catch basins..

In all three of these cases, the Connecticut DOT's Drainage Manual prescribes a 10 foot long or shorter riprap apron to prevent scour according to table 11.12.1. All three would qualify as Type A conditions with tailwater less than half the diameter of the discharging pipe and all three would have flows of 2 cfs or less in the 25 year Cornell storm.

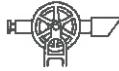
**FILE**

**RECEIVED**

AUG 25 2017

**PLANNING BOARD  
GRAFTON, MA**

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



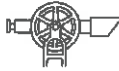
*Professional Engineers Professional Land Surveyors*  
*Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #2**  
**Peak Rate Attenuation**

The Drainage Report included with the Notice of Intent filing shows that the proposed postdevelopment condition after the installation of the proposed drainage system will result in no abutting property receiving a higher peak rate of flow than it did in the predevelopment condition.

**THOMPSON-LISTON  
ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #3  
44% removal of TSS before infiltration**

1) Under this filing, the runoff collected from the new paved area east and north of the proposed building addition will pass through a deep sump catch basin and then a model 2015 CDS stormwater filtration unit before flowing being discharged into a detention/infiltration area. DEP's Stormwater Management Standards require that at least 44% of TSS be removed before runoff is directed to an infiltration BMP.

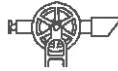
All of the parking and loading area runoff will pass through a deep sump catch basin before going through the CDS unit. The TSS reduction achieved will be 85% calculated as follows:

25% reduction for deep sump catch basins

80% reduction for the use of a CDS unit according to independent testing at the University of Florida

$$(1 - (.25) - (.80 \times .75)) = .15 \text{ or } 85\% \text{ removal}$$

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

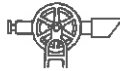
**Stormwater Management Standard #3**  
**65% of impervious surfaces being recharged**

This project is a redevelopment of an existing, previously developed site with an existing drainage system. The existing drainage system does not technically infiltrate runoff, though we believe that there is some infiltration of stormwater runoff once it is in the existing detention basin.

There will be a total of 113,916 square feet of impervious surface on the site. Approximately 17,000 square feet of new impervious cover will be created and 12,000 square feet or 70.6% of this new impervious cover will be directed to an infiltration structure.

Because the existing detention basin is likely at an elevation within 2 feet of season high groundwater, it's not possible to convert that basin to an infiltration basin.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors*  
*Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #3**  
**Required Recharge Volume calculation**

A total of 17,000 square feet of impervious surface will be created by the proposed redevelopment of the site.

Of this total, 2,980 square feet of that impervious surface will lie over upland areas of Freetown series soils categorized as hydrologic soil group "B" soils. The remainder of the site lies over "Udorthents" series soils categorized as hydrologic soil group "A" soils.

So, the required recharge volume is:

2,980 s.f. x (1/12 foot/inch) x (0.35 inches) = 87 cubic feet

14,020 s.f. x (1/12 foot/inch) x (0.60 inches) = 701 cubic feet

Total of 788 cubic feet.

**THOMPSON-LISTON  
ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

### **Stormwater Management Standard #3 Sizing the Recharge BMP**

The required recharge volume for the redevelopment at the Dimitria Delights facility will be 788 cubic feet. A static analysis shows that the proposed infiltration system provides more than this volume in capacity before flow reaches discharge pipes.

If we look at the 2 year storm results, we see that a maximum total storage of 989 cubic feet within the infiltration structure is used in that event and that the peak elevation of water within the structure is elevation 359.86 while the three 6 inch discharge pipes have invert elevations of 360.00.

So, there's no question that the proposed infiltration structure can effectively handle the recharge volume from the proposed redevelopment.

### **72 Hour Drawdown**

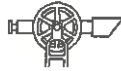
To confirm that this infiltration structure has been designed with adequate bottom area we confirm that it will completely drain within 72 hours. To do this, we confirm that the required recharge volume will drain out of it in that time assuming the infiltration rate associated with the sand textured soils on this site.

The formula to confirm this is:

$$\begin{aligned}\text{Time} &= Rv/(K)(\text{Bottom Area}) \\ &= (788 \text{ cubic feet})/((8.27 \text{ inches/hour})(468 \text{ square feet})) \\ &= (788 \text{ cubic feet})/((8.27 \text{ inches/hour})(1/12 \text{ feet per inch})(468 \text{ square feet})) \\ &= (788)/(322.5) \\ &= 2.4 \text{ hours}\end{aligned}$$

This is much less than the maximum 72 hour drawdown time and therefore adequate.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #4**  
**Water Quality**

The water quality volume for the proposed redevelopment site is based on 1/2 inch depth because there are no discharges to critical areas proposed on this site.

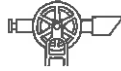
So, water quality volume =  $(0.5/12 \text{ feet per inch}) * (17,000 \text{ s.f. impervious surface})$   
= 708 cubic feet.

The site's captured stormwater runoff from impervious surfaces (with the exception of clean roof runoff) will all pass through deep sump catch basins and a CDS stormwater filtration unit. Some of this runoff will also be directed to an infiltration structure. The capacity of the catch basins and CDS units is well in excess of 708 cubic feet.

For the runoff from the impervious surfaces picked up by the catch basins, the calculation is as follows:

First, 25% of TSS is removed by deep sump catch basins leaving 75% of TSS remaining. Then 80% of that is removed by the CDS unit  $(.75 - (.80 \times .75))$  leaving 18.75% which means that 81.75% removal of TSS is achieved in this portion of the runoff.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

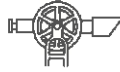
51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #5**  
**Land Uses with Higher Potential Pollutant Loads**

The proposed use of this site will include manufacturing, as a bakery, and will include trucking pickups and deliveries and this could be categorized as a land use with higher potential pollutant loading.

In accordance with DEP standards, we will employ BMP's from among those cited on Table LUHPPL in Volume 1, Chapter 1 of the DEP Stormwater Management Handbook including deep sump catch basins and a proprietary stormwater filter, namely a CDS unit.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



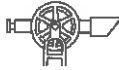
*Professional Engineers Professional Land Surveyors*  
*Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #6**  
**Critical Areas**

This project will not include any discharges to critical areas. These include Zone II interim wellhead protection areas, shellfish growing areas, bathing beaches, Outstanding Resource Waters, Special Resource Waters and Cold-Water Fisheries.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors*  
*Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #7**  
**Redevelopment**

The proposed site development of 81 Creeper Hill Road, Grafton will constitute a mix of redevelopment and new development of this property. Nearly all of the work areas have been previously developed. In fact, the applicant will install a split rail fence at the limit of work which will pull back development areas from resource areas where they presently extend right up to the limit of bordering vegetated wetlands.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



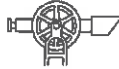
*Professional Engineers Professional Land Surveyors  
Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #8**  
**Construction Period Controls**

Erosion and sediment control measures are shown on the Site Plans and a construction sequence is outlined on detail sheet D6 as well as descriptions of the proposed application of various bmp's. A long term operation and maintenance plan is also included in this filing.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors*  
*Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #9**  
**Post Construction Controls**

The methods and frequency of maintenance of the stormwater management system as well as the name of the owner and the party responsible for upkeep are outlined in the Post Construction (Long Term) Stormwater Operation & Maintenance Program attached to this document.

**CONSTRUCTION PERIOD (SHORT TERM)**  
**STORMWATER OPERATION & MAINTENANCE PROGRAM**  
**August 21, 2017**

**Colorio Realty, LLC**  
**Site at 81 Creeper Hill Road**  
**Grafton, Massachusetts**

**Currently Owned by:**  
**Colorio Realty, LLC**

During Construction the contractor is responsible for the following inspection and maintenance. Inspections and resulting maintenance tasks shall be recorded in an Inspection Log that is kept on site and available for inspection by Town, State, and Federal officials.

**Contractor Information:**

**Contractor/Operator:** \_\_\_\_\_  
\_\_\_\_\_

**Address:** \_\_\_\_\_

**Contact Name and Phone Number:** \_\_\_\_\_  
\_\_\_\_\_

1. Water tightness of catch basin sumps shall be tested and assured after installation.
2. Catch basins shall be protected from sedimentation through haybale filter dikes, filter fabric sacks, or other approved methods as necessary given field conditions.
3. Catch basin grates shall be inspected monthly. Debris, sand, and accumulated trash shall be removed from inlets.
4. Catch basins shall be inspected bi-weekly and shall be cleaned out as necessary, when the siltsacks or sumps have accumulated one half (1/2) the original depth. If excessive oil, gasoline, or sediment is present, remove all liquid and solids from the sumps. If catch basins are regularly observed to have a sheen of petroleum product, install oil adsorbent materials that float on the surface. Dispose of waste properly. Catch basin sumps shall be cleaned out quarterly. Catch basin traps shall be inspected after each cleaning, and any damage shall be repaired.
5. Drain manholes, CDS units and the in ground detention infiltration system shall be inspected monthly and shall be cleaned out as necessary. Cleanout shall be recorded

in the maintenance log. Dispose of waste properly. Engineer shall be notified of any evidence of sediment in the drain manholes.

6. The subsurface infiltration area must be kept free of sediment and shall not be used as a temporary settling area or for discharge of excavation dewatering.

7. The subsurface infiltration system shall be observed through the inspection port monthly for any sign of sediment laden water, backup, or contamination. Engineer shall be notified if any of these conditions are observed.

8. The owner's designee shall inspect the system, and the contractor shall clean all components as necessary (e.g. by removing the siltsacks, sediment, and sand) in order to turn over to the owner a clean and functioning system.

**POST CONSTRUCTION (LONG TERM)  
STORMWATER OPERATION & MAINTENANCE PROGRAM  
August 21, 2017**

**Colorio Realty LLC  
81 Creeper Hill Road  
Grafton, Massachusetts**

**Applicant:**

<b>Colorio Realty LLC 81 Creeper Hill Road, Grafton, MA 01536 Contact: John Colorio      Phone: 508-839-3035</b>
--

Upon completion of the project, the drainage system will be maintained by the owner. Once the construction site has been fully stabilized, the owner should establish a schedule and keep a log of inspection and maintenance activities for the measures described below:

**Landscape Maintenance:**

Vegetated areas in the landscape will reduce erosion, encourage infiltration of rainwater, and keep stormwater clean. It is important to maintain the vegetated areas of the site.

1. Proper mowing is one of the most important ways to maintain a healthy lawn. Mow only when the grass is dry to get a clean cut and minimize the spread of disease. Mow grass to a height of 3". Mow frequently, cutting no more than 1/3 of the height of the grass at a time. Sharpen your mower blades after every 10 hours of mowing.
2. Grass clippings contain high amounts of nitrogen, a key ingredient in fertilizer. Make all attempts to use your grass clippings by leaving them on your lawn. If the grass clippings are not used, do not dispose of them near any wetlands and or water bodies and designate a place to compost them in an upland area.
3. If your lawn areas and plant material demand fertilizer then use organic or slow release fertilizers. Fertilize in the fall, but in coordination with weather patterns.
4. The best defense against pests within the grass is to use an Integrated Pest Management system which consists of beneficial insects (lady bugs, spiders, certain nemetodes and bacteria.)
5. Minimize watering the lawn areas. If needed water in the early morning and water deeply and infrequently.
6. If needed, the trees and shrubs shall be pruned but at a minimum of once a year.

### Impervious Surface Maintenance:

Particles that collect on paved surfaces can contain materials that can inhibit water quality. Sweeping sand and debris from the parking lot is a good housekeeping measure that will remove gross pollutants, and should be undertaken a minimum of twice per year. DEP recommends frequent sweeping of parking lots in high traffic areas as an integral part of stormwater management.

1. The loading and parking areas shall be swept at least twice a year.
2. Accumulated leaves and grass clippings shall also be removed from the impervious surfaces at a minimum of twice a year
3. In the winter months, CaCl application shall be limited to the amount necessary to prevent sand from freezing. Sand shall be used sparingly but in sufficient quantity to maintain the parking and loading surface in a safe condition.

### Catch Basins and Area Drains:

Catch basins with oil traps and deep sumps are the first line of defense to prevent pollutants from reaching water resources. Regular maintenance and cleaning of the catch basins is key to protecting water quality and can reduce the more expensive maintenance of other devices in the treatment train.

1. If excessive oil, gasoline, or sediment is present, remove all liquid and solids from the sumps. Absorbent products are available to attach to the interior of catch basins in order to absorb floatable petroleum products from sumps. If floatables are noted on a regular basis, these measures should be added to the catch basin sumps. Dispose of waste properly.
2. Catch basin grates shall be inspected on a monthly basis. Debris, sand, vegetation, and accumulated trash shall be removed and disposed of properly.
3. Catch Basin sumps shall be inspected on a monthly basis for the first year and quarterly thereafter, and will be cleaned upon the observance of spill of observable petroleum products, such as oil, coolant, or fuel. Dispose of waste properly.
4. If a spill of any harmful substance occurs on the surface of the parking area, the catch basin shall be protected against contamination by the use of a dike or absorbent material. Adequate quantities of absorbent material shall be stored in an accessible location. An emergency spill kit containing absorbent material should be kept in an area accessible to the parking lot.
5. In any case Catch Basin sumps shall be cleaned of sand and liquid at least twice per. Dispose of waste properly.

6. Catch basin traps shall be inspected after each cleaning, and any damaged shall be repaired.

### Hydrodynamic Separators (CDS Unit):

The CDS unit removes floatable trash, petroleum products, and sediments from the stormwater in order to prevent them from reaching the water supply. It must be inspected and cleaned periodically to be sure it is operating properly.

1. Separator shall be inspected at a minimum of two times a year (i.e. spring and fall).
2. The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions to the inlet and or separation screen.
3. If during the inspection, it is noticed that any of the internal components are damaged or missing, contact CONTECH 1-800-338-2211.
4. The inspection should also identify evidence of vector infestation (mosquito larvae, for example) and accumulation of hydrocarbons, trash, and sediment in the system and the screen.
5. The screen shall be power washed and the unit's internal components cleaned when the level of sediment reached 75% of capacity in the isolated sump and/or when an appreciable level of hydrocarbons and trash has accumulated.
6. A vacuum truck is recommended for cleanout of the CDS unit. Disposal of the material from the CDS unit should be in accordance with the local municipality's requirements.
7. Clean the treatment unit during dry weather conditions when no flow is entering the system. Remove debris, sand, and accumulated trash from unit's interior and remove the fines from the screen.
8. The CDS Unit is a confined space and only properly trained personnel possessing the proper training and possess the necessary safety equipment should enter the unit. Confined spaces can contain odorless, colorless poison gas.

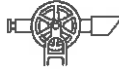
### In Ground Detention/Infiltration System

The in ground detention system keeps the peak rate of flow of runoff from this project from exceeding the peak rate of flow of runoff to abutting properties in the predevelopment condition. It must be inspected to make sure that debris is not

entering the piping system which might clog the outlet and to confirm the integrity of the system joints.

1. The in ground detention system shall be inspected twice per year at the inspection ports. Look for debris, either sediment or trash that may indicate that other material is somehow entering the roof runoff discharge line that may clog the infiltration system.
2. The inspection should also include looking for any signs of deformation of the chambers or a break in connection at chamber unit joints. If water, trash, sediment or other material has been visibly deposited in the system, report this to the owner or property manager so that maintenance can be scheduled.
3. If maintenance is required of inlet or outlet pipes, use a high powered pressure nozzle with rear facing jets to wash away sediments and debris within the pipes and remove the sediment.
4. If, during the inspection, it is noticed that any components of the in ground detention system are damaged or missing, contact the owner, property manager and the manufacturer.
5. Subsurface Infiltration structures will be provided with inspection ports. These ports shall be opened and the structures inspected at least once per year through the inlet and outlet manholes and inspection ports. The underground pipe and stone area shall be inspected via observations through the inspection and observation ports. If water, trash, sediment, or any other material is visible in either port, report this to the property manager so that maintenance can be scheduled.
6. The in ground detention system is a confined space and only properly trained personnel possessing the proper training and possess the necessary safety equipment should enter the systems. Confined spaces can contain odorless, colorless poison gas.

**THOMPSON-LISTON**  
**ASSOCIATES, INC.**



*Professional Engineers Professional Land Surveyors*  
*Landscape Architects Erosion Control Specialists*

51 Main Street, Post Office Box 570  
Boylston, Massachusetts 01505-0570  
Telephone (508) 869-6151 FAX (508) 869-6842

**Stormwater Management Standard #10**  
**Prohibition of illicit discharges**

The applicant has done an excellent job of maintaining the existing drainage system and will continue this conscientious maintenance of the new drainage system features. The applicant is cognizant of the effects upon the environment of improper disposal of wastewater, raw materials, toxic and hazardous substances, oil and grease. The applicant will also prevent anyone else from using its property for disposal.